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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/564,934	01/13/2006	Jean-Marie Poulet	CRE-17902	5171
40854	7590	12/06/2010		
RANKIN, HILL & CLARK LLP 38210 GLENN AVENUE WILLOUGHBY, OH 44094-7808				
EXAMINER				
AHVAZI, BILAN				
ART UNIT		PAPER NUMBER		
1761				
NOTIFICATION DATE		DELIVERY MODE		
12/06/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/564,934

**Applicant(s)**

POULET ET AL.

**Examiner**

BIJAN AHVAZI

**Art Unit**

1761

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 September 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-13, 15, 16, 18-21, 23, 24, 26-32, 39-41, 43-45, 47-49 and 51-62 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-13, 15, 16, 18-21, 23, 24, 26-32, 39-41, 43-45, 47-49 and 51-62 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

***Response to Arguments***

1. This action is responsive to the **Appeal Brief** request for review filed on September 30, 2010. On further consideration, the prosecution has been reopened.
2. Claims 11-13, 15-16, 18-21, 23-24, 26-32, 39-41, 43-45, 47-49, and 51-62 are pending. Claims 14, 17, 22, 25, 33-38, 42, 46, and 50 are previously cancelled.
3. Applicant's arguments with respect to claims 11-13, 15-16, 18-21, 23-24, 26-32, 39-41, 43-45, 47-49, and 51-62 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 11-13, 15-16, 18-21, 23-24, 26-32, 39-41, 43-45, 47-49, 51, 53-58, 60-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maze *et al.* (WO 02/38686 A2) in view of O'Donnell *et al.* (Pub. No. US 2002/0142611 A1).

Regarding claims 11, 18-20, 28, 30, 39, 40-41, 43, 62, Maze *et al.* teach an anti-corrosion coating composition for metal parts, characterized in that it comprises: at least one particulate metal; an organic solvent; a thickener; a silane-based binder, preferably carrying epoxy functional groups; molybdenum oxide (MoO<sub>3</sub>); possibly a silicate of sodium, potassium or lithium, and; water (Page 3, lines 10-20) wherein the content of molybdenum oxide MoO<sub>3</sub> is

preferably between 0.5 and 7% and even more preferably in the region of 2% by weight of the total composition (Page 3, line 23). Advantageously, the particulate metal content is between 10% and 40% by weight of metal with respect to the weight of the composition (Page 3, line 36). Such a composition also makes use of a binder, preferably an organofunctional silane, used in an amount of 3% to 20% by weight (Page 4, line 34). Preferably, the useful silane is an epoxy functional silane such as  $\beta$ -(3, 4-epoxycyclohexyl) ethyltrimethoxysilane, 4-(trimethoxysilyl) butane-1, 2 epoxide or  $\gamma$ -glycidoxypentyl- trimethoxysilane (Page 5, line 3). Maze *et al.* teach an anti-corrosion coating composition for metal parts wherein the anti-corrosion coating compositions can also contain, in addition to the organic solvent such as a glycol ether, in particular diethylene glycol, triethylene glycol and dipropylene glycol (Page 4, line 18), up to a maximum amount of approximately 10% by weight of white spirit so as to improve the ability of the anti-corrosion compositions to be applied to the metal parts by spraying, dipping or dip-spinning (Page 5, line 7). Advantageously, the composition may also contain a silicate of sodium, potassium or lithium, preferably in an amount from 0.05 % to 0.5 % by weight (Page 5, line 14). The anti-corrosion composition also contains from 0.005% to 2% by weight of a thickening agent (Page 4, lines 21-27) and possibly a silicate of sodium, potassium or lithium, and; water (Page 3, lines 10-20).

Maze *et al.* **do not** expressly teach a reinforcing agent for the anticorrosion properties of the composition selected from the group consisting of yttrium, zirconium, lanthanum, cerium, praseodymium and neodymium, in the form of oxides, wherein reinforcing agent is selected from  $\text{CeO}_2$ ,  $\text{Pr}_6\text{O}_{11}$ ,  $\text{Nd}_2\text{O}_3$ , and  $\text{ZrO}_2$  and a lubricating agent to obtain a self-lubricated system selected from the group consisting of polyethylene,  $\text{MoS}_2$ , graphite, polysulfones, polytetrafluoroethylene, synthetic or natural waxes and nitrides, and their mixtures.

However, O'Donnell *et al.* teach an effective way to provide corrosion resistance (Page 2, ¶0022), wherein the cerium oxide containing ceramic material comprises one or more cerium oxides comprise the single largest constituent of the ceramic material (Page 2, ¶0023). The cerium oxide may be Ce(III) oxide or a Ce(IV) oxide (Page 2, ¶0023). The cerium oxide containing ceramic material may also contain alumina, zirconia, yttria, and other oxides, nitrides, borides, fluorides and carbides of elements of Groups IIA, IIIA, IVA, VA, VIA, VIIA, VIIIA, IB, IIB, IIIB, IVB, and VB (Page 2, ¶0023). The ceramic material may also comprise any oxide, nitride (read on lubricating agent), boride, fluoride or carbide of any of the elements of the lanthanide series (e.g., those elements having an atomic number of 58-71) (Page 2, ¶0023). Particularly preferred materials in this group are cerium boride and cerium nitride (Page 2, ¶0023) with the benefit of exhibiting lower erosion rates, decrease levels of metal and particulate contamination, lower costs by increasing the lifetime of consumables, decrease process drifts and reduce the levels of corrosion of chamber parts and substrates (Page 6, ¶0057) [motivation].

Maze *et al.* and O'Donnell *et al.* are analogous art because they are from the same field of endeavor, namely that of the anticorrosion coating composition. In the light of such benefit at the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify an anti-corrosion coating composition for metal parts by Maze *et al.* so as to include a reinforcing agent which is selected from  $\text{CeO}_2$ ,  $\text{Pr}_6\text{O}_{11}$ ,  $\text{Nd}_2\text{O}_3$ , and  $\text{ZrO}_2$  and a lubricating agent to obtain a self-lubricated system such as nitrides as taught by O'Donnell *et al.* and would have been motivated to do so with reasonable expectation that this would result in providing lower erosion rates, decrease levels of metal and particulate contamination, lower costs by increasing the lifetime of consumables, decrease process drifts and reduce the levels of corrosion of chamber parts and substrates as taught by O'Donnell *et al.* (Page 6, ¶0057).

Regarding claims 12-13, Maze *et al.* teach the anti-corrosion coating composition for metal parts wherein the content of molybdenum oxide  $\text{MoO}_3$  is preferably between 0.5 and 7% and even more preferably in the region of 2% by weight of the total composition (Page 3, line 23).

Regarding claims 15-16, Maze *et al.* teach the anti-corrosion coating composition for metal parts wherein the particulate metal present in the composition can be chosen from zinc, aluminium, chromium, manganese, nickel, titanium, their alloys and intermetallic compounds, and mixtures thereof (Page 3, lines 26-30).

Regarding claims 21, 44-45, Maze *et al.* teach the anti-corrosion coating composition for metal parts, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made, since it held that a particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as taught by Maze *et al.* as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

Regarding claims 23, 51, Maze *et al.* teach the anti-corrosion coating composition for metal parts wherein the organofunctionality can be represented by vinyl, methacryloxy and amino, but is preferably epoxy functional for enhanced coating performance as well as composition stability. The silane is advantageously easily dispersible in aqueous medium, and is preferably soluble in such medium (Page 4, line 35). The other component of the binder is also selected from a silicate of sodium, potassium or lithium (Page 3, line 17).

Regarding claim 24, Maze *et al.* teach the anti-corrosion coating composition for metal parts wherein preferably, the useful silane is an epoxy functional silane such as  $\beta$ -(3, 4-epoxycyclohexyl) ethyltrimethoxysilane, 4-(trimethoxysilyl) butane-1, 2 epoxide or  $\gamma$ -glycidoxypropyl- trimethoxysilane (Page 5, line 3).

Regarding claims 26-27, 53-56, Maze *et al.* teach the anti-corrosion coating composition for metal parts wherein the anti-corrosion composition also contains from 0.005% to 2% by weight of a thickening agent (read on up to 7% by weight of the instant applicants), in particular of a cellulose derivative, more particularly hydroxymethylcellulose, hydroxyethylcellulose, hydroxypropylcellulose, hydroxypropylmethylcellulose, xanthan gum or an associative thickener of the polyurethane or acrylic type (Page 4, lines 21-27) and possibly a silicate of sodium, potassium or lithium, and; water (Page 3, lines 10-20).

Regarding claims 29, 31-32, 57, Maze *et al.* teach the anti-corrosion coating composition for metal parts wherein the standard reference GEOMET® composition in Example 1 corresponds to 0.65% of a weak mineral such as boric acid, 0.4% of Schwego Foam® (emulsified antifoam), and 0.53% of Aerosol® TR70 (an anionic surfactant) (Page 8, line 20).

Regarding claims 47-48, Maze *et al.* teach the anti-corrosion coating composition for metal parts wherein the anti-corrosion coating compositions can also contain, in addition to the organic solvent such as a glycol ether, in particular diethylene glycol, triethylene glycol and dipropylene glycol (Page 4, line 18), up to a maximum amount of approximately 10% by weight of white spirit so as to improve the ability of the anti-corrosion compositions to be applied to the metal parts by spraying, dipping or dip-spinning (Page 5, line 7).

Regarding claim 49, Maze *et al.* teach the anti-corrosion coating composition for metal parts wherein advantageously, the composition may also contain a silicate of sodium, potassium or lithium, preferably in an amount from 0.05 % to 0.5 % by weight (Page 5, line 14).

Regarding claim 58, Maze *et al.* teach the anti-corrosion coating composition for metal parts wherein the particulate metals have a lamellar form, the thickness of the flakes being comprised between 0.05  $\mu\text{m}$  and 1  $\mu\text{m}$  and having a diameter equivalent ( $D_{50}$ ) (Page 2, lines 30-33).

Regarding claim 60, Maze *et al.* teach the anti-corrosion coating composition for metal parts wherein the molybdenum oxide  $\text{MoO}_3$  is used in an essentially pure orthorhombic crystalline form, having a molybdenum content greater than approximately 60% by mass (Page 3, lines 1-3).

Regarding claim 61, Maze *et al.* teach the anti-corrosion coating composition for metal parts wherein the molybdenum oxide  $\text{MoO}_3$ , will be used in the anti-corrosion compositions in the form of particles having dimensions of between 1 and 200  $\mu\text{m}$  (Page 3, lines 5-7).

6. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maze *et al.* (WO 02/38686 A2) in view of O'Donnell *et al.* (Pub. No. US 2002/0142611 A1) as applied to claim 11 as above and further in view of Phillips *et al.* (Pat. No. US 5,250,325).

Regarding claim 52, The disclosure of Maze *et al.* and O'Donnell *et al.* are adequately set forth in paragraph 5 and is incorporated herein by reference. Maze *et al.* and O'Donnell *et*



*al.* **do not** expressly teach the anticorrosion coating composition for metal parts wherein the binder is associated with a phenolic cross- linking agent or an aminoplastic cross-linking agent.

However, Phillips *et al.* teach an anticorrosion coating composition containing certain alkanolic acid salts, as corrosion inhibitors; as well as those alkanolic acid salts which are novel (Col. 1, lines 4-7). Preferred adducts of an epoxide resin with an amine are adducts of a polyglycidyl ether, which can be of a polyhydric phenol or a polyhydric alcohol, with a monoamine. Suitable polyglycidyl ethers include those of dihydric alcohols such as butane-1, 4-diol, neopentyl glycol, hexamethylene glycol, oxyalkylene glycols and polyoxyalkylene glycols, and tri-hydric alcohols such as glycerol, 1,1,1-trimethylolpropane and adducts of these alcohols with ethylene oxide or propylene oxide (Col. 6, lines 60-68). It will be understood by those skilled in the art that these polyglycidyl ethers of polyhydric alcohols are usually advanced, i.e. converted into longer chain higher molecular weight polyglycidyl ethers, for example by reaction with a dihydric alcohol or phenol, so that the resulting polyglycidyl ethers give adducts with suitable electrodepositable film-forming properties on reaction with the secondary monoamine (Col. 7, lines 1-8). Preferred polyglycidyl ethers are those of polyhydric phenols, including bisphenols such as bisphenol F, bisphenol A and tetrabromobisphenol A and phenolic novolak resins such as phenol-formaldehyde or cresol-formaldehyde novolak resins. These polyglycidyl ethers of phenols may have been advanced, for example by reaction with dihydric alcohols or phenols such as those described. Particularly preferred polyglycidyl ethers are polyglycidyl ethers of bisphenol A advanced by reaction with bisphenol A (Col. 7, lines 8-18). Monoamines suitable for adduct formation with the polyglycidyl ethers include primary, secondary or tertiary amines. Secondary amines are preferred e.g. dialkylamines such as diethylamine, di-n-propylamine, di-isopropylamine, di-n-butylamine, di-n-octylamine and di-n-dodecylamine or nitrogen heterocycles such as piperidine or morpholine (Col. 7, lines 19-24)

with the benefit of exhibiting conversion into longer chain higher molecular weight polyglycidyl ethers having improve the anti-corrosion properties in less toxic risk and less adverse consequences for the environment. (Col. 7, lines 1-8) **[motivation]**.

Maze *et al.* and Phillips *et al.* are analogous art because they are from the same field of endeavor, namely that of the anticorrosion coating composition. In the light of such benefit at the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify an anti-corrosion coating composition for metal parts by Maze *et al.* in view of a reinforcing agent which is selected from  $\text{CeO}_2$ ,  $\text{Pr}_6\text{O}_{11}$ ,  $\text{Nd}_2\text{O}_3$ , and  $\text{ZrO}_2$  and a lubricating agent to obtain a self-lubricated system such as nitrides by O'Donnell *et al.* so as to include a phenolic or aminoplastic cross-linking agents as taught by Phillips *et al.* and would have been motivated to do so with reasonable expectation that this would result in providing conversion into longer chain higher molecular weight polyglycidyl ethers, for example by reaction with a dihydric alcohol or phenol, so that the resulting polyglycidyl ethers give adducts with suitable electrodepositable film-forming properties on reaction with the secondary monoamine as taught by , Phillips *et al.* (Col. 7, lines 1-8) and thus improve the anti-corrosion properties of parts treated without using a composition based on reinforcing agent in the formulation of the coatings with less toxic risk and less adverse consequences for the environment.

7. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maze *et al.* (WO 02/38686 A2) in view of O'Donnell *et al.* (Pub. No. US 2002/0142611 A1) as applied to claim 11 above, and further in view of Wataya *et al.* (Pat. No. US 5,879,649).

Regarding claim 59, The disclosure of Maze *et al.* and O'Donnell *et al.* are adequately set forth in paragraph 5 and is incorporated herein by reference. Maze *et al.* and O'Donnell *et*

*al.* **do not** expressly teach the anticorrosion coating composition for metal parts wherein said yttrium oxide  $Y_2O_3$  is used in the form of particulates having a size of between  $1\text{ }\mu\text{m}$  and  $40\text{ }\mu\text{m}$  with a  $D_{50}$  of less than  $3\text{ }\mu\text{m}$ .

However, Wataya *et al.* teach the use of yttrium oxide  $Y_2O_3$  (Col. 6, line 36) is used in the form of particulates (Col. 6, line 35) having a size of between  $1\text{ }\mu\text{m}$  and  $40\text{ }\mu\text{m}$  (Col. 6, line 39) with a  $D_{50}$  of less than  $3\text{ }\mu\text{m}$  (Col. 6, line 42) as coating agent (Col. 1, lines 13) with the benefit of exhibiting a particle diameter in a submicron range and good dispersibility of particles by virtue of absence of agglomeration (Col. 1, lines 9-10, 14-15) **[motivation]**.

Maze *et al.* and Wataya *et al.* are analogous art because they are from the same field of endeavor, namely that of the use of yttrium oxide  $Y_2O_3$  in coating composition. In the light of such benefit at the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify an anti-corrosion coating composition for metal parts by Maze *et al.* in view of a reinforcing agent which is selected from  $CeO_2$ ,  $Pr_6O_{11}$ ,  $Nd_2O_3$ , and  $ZrO_2$  and a lubricating agent to obtain a self-lubricated system such as nitrides by O'Donnell *et al.* so as to include a yttrium oxide  $Y_2O_3$  in the form of particulates having a size of between  $1\text{ }\mu\text{m}$  and  $40\text{ }\mu\text{m}$  with a  $D_{50}$  of less than  $3\text{ }\mu\text{m}$  as taught by Wataya *et al.* and would have been motivated to do so with reasonable expectation that this would result in providing fine globular particles of yttrium oxide having a globular or spherical particle configuration and having usefulness as a base material of a sintered body of yttrium oxide, sintering aid of various kinds of ceramic materials, base material of luminescent phosphors, coating agent on the particles of a luminescent phosphor and so on by virtue of absence of agglomeration and good dispersibility of particles as taught by Wataya *et al.* (Col. 1, lines 6-15).

***Response to Arguments***

8. Applicant's arguments with respect to claims 11-13, 15-16, 18-21, 23-24, 26-32, 39-41, 43-45, 47-49, and 51-62 have been considered but are moot in view of the new ground(s) of rejection.

***Examiner Information***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bijan Ahvazi, Ph.D. whose telephone number is (571)270-3449. The examiner can normally be reached on M-F 8:0-5:0. (Off every other Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Y. Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BA/  
Bijan Ahvazi,  
Examiner  
Art Unit 1761

/Harold Y Pyon/  
Supervisory Patent Examiner, Art Unit 1761

11/18/2010